

PC10706US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No: 10/520,683
Applicants: Holger Von Hayn et al.
Filed: July 14, 2005
Title: BRAKE BY-WIRE ACTUATOR
T.C./A.U.: 3657
Examiner: Bradley T. King
Confirmation No.: 5197
Docket No.: PC10706US
Notice of Appeal Filed: December 13, 2010

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

SIR :

Appellants hereby request consideration and reversal of the Final Rejection dated September 14, 2010.

This Brief is presented in the format required by 37 C.F.R. § 41.37, in order to facilitate review by the Board. In compliance with 37 C.F.R. § 41.37(a)(1), this Brief is being filed within the time allowed for response to the action from which the Appeal was taken or within two months from the date of the Notice of Appeal, whichever is later.

The fees for filing a Brief in support of an Appeal under 37 C.F.R. § 41.20(b)(2) are provided herewith.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is the following party:
Continental Teves AG & Co. oHG.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences related to the subject matter of this Appeal.

III. STATUS OF CLAIMS

Claims 22-49 are pending and claims 1-21 are canceled. Claims 26-29, 31, 32, 34, 48 and 49 stand withdrawn from consideration. Claims 22-25, 30, 33, 35-38, 42 and 44-47 stand finally rejected. Claims 22-38, 42 and 44-49 are the subject of this appeal.

The Final Office Action objected to claims 39-41 and 43 as being dependent upon a rejected base claim, but indicated these claims would be allowable if written into independent form including all of the limitations of the base claim and any intervening claims. An Amendment is filed herewith amending claims 39 and 43 into independent form including all of the limitations of the base claim and any intervening claims. Claims 40 and 41 depend from claim 39. Accordingly, claims 39-41 and 43 should be in condition for allowance.

IV. STATUS OF AMENDMENTS

The Final Office Action objected to claims 39-41 and 43 as being dependent upon a rejected base claim, but indicated these claims would be allowable if written into independent form including all of the limitations of the base claim and any intervening claims. An AMENDMENT UNDER 37 C.F.R. § 41.33 is filed herewith amending claims 39 and 43 into independent form including all of the limitations of the base claim and any intervening claims. Claims 40 and 41 depend from claim 39.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

All references to the specification of the patent application presented hereinafter refer to the originally-filed clean copy of the substitute specification. Additionally, all references to the specification and the drawings of the patent application presented hereinafter are provided solely for the purpose of example to aid the Board of Patent Appeals and Interferences.

As set forth in independent **claim 22**, the presently claimed invention relates to a brake-by-wire actuator for actuating the brake system of a motor vehicle. With reference to Figures 1-3 and 5-8, the specification explains in the paragraph beginning on page 17, line 8 that the brake-by-wire actuator comprises a simulator 2 which can be acted upon by a brake pedal 1. An output signal of an actuation sensor 3 is sent to an electronic control unit 4 which controls a pressure source 6 in response to the signal of the actuation sensor 3. As set forth in the paragraph beginning at page 17, line 26, an output of the pressure source 6 is connected to a distributor device 10 for the brake force and actuates individual wheel brakes 16 of the vehicle.

The brake-by-wire actuator also comprises means for enabling actuation of the brakes by muscular power within a fallback mode. In the embodiments illustrated in Figures 1, 2 and 8 and described in the specification at page 17, line 8 to page 19, line 2, the means for enabling actuation in a fallback mode includes a first actuation component 47 defined by the brake pedal 1 and a second actuation component 37 defined by the input member 5 which is connected downstream in the flux of force. The first and second actuation components 47, 37 are configured relative to one another such that the first actuation component 47 remains mechanically uncoupled in a non-force-transmitting manner from the second actuation component 37 during the by-wire mode.

In the embodiment illustrated in Figures 3-4 and described in the specification at page 19, line 27 to page 24, line 2, the means for enabling actuation in a fallback mode includes a first actuation component 47 defined by a component 21 articulated at the brake pedal 1 and a second actuation component 37 defined by the input member 5 which is connected downstream in the flux of force. The first

and second actuation components 47, 37 are configured relative to one another such that the first actuation component 47 remains mechanically uncoupled in a non-force-transmitting manner from the second actuation component 37 during the by-wire mode.

In the embodiment illustrated in Figure 5 and described in the specification at page 24, lines 3-23, the means for enabling actuation in a fallback mode includes a first actuation component 47 defined by a component 36 articulated at the brake pedal 1 and a second actuation component 37 defined by a hydraulic piston 46 which is connected downstream in the flux of force. The first and second actuation components 47, 37 are configured relative to one another such that the first actuation component 47 remains mechanically uncoupled in a non-force-transmitting manner from the second actuation component 37 during the by-wire mode.

In the embodiment illustrated in Figures 6-7 and described in the specification at page 24, line 24 to page 25, line 26, the means for enabling actuation in a fallback mode includes a first actuation component 47 defined by a component 36 articulated at the brake pedal 1 and a second actuation component 37 which is connected downstream in the flux of force. The first and second actuation components 47, 37 are configured relative to one another such that the first actuation component 47 remains mechanically uncoupled in a non-force-transmitting manner from the second actuation component 37 during the by-wire mode.

In each of the embodiments, a lost travel 'a' (see Figures 2, 3, 5, 6 and 7) remains between the first actuation component 47 and the second actuation component 37 during the by-wire mode. See, e.g., the specification at page 18, line 29 to page 19, line 9; page 21, lines 11-14; page 24, lines 14-20; page 24, lines 21-23. As explained in the specification at page 3, lines 15-24, the "lost travel a is provided between an actuation component such as a brake pedal or a component articulated at a brake pedal and a second actuation component that is connected downstream in the flux of force, in order to uncouple the brake pedal mechanically from the reactions of force of the motor vehicle brake system in the by-wire mode. Consequently, the actuation component has a divided design, and the two parts are spaced a distance 'a' from one another so that the flux of force is interrupted."

(emphasis added). With this assembly, disturbances at the wheel brakes are not transmitted back through the actuation components to the brake pedal, thereby minimizing unwanted feedback to the driver.

Dependent **claims 23-26** recite a means to automatically reduce the lost travel after a by-wire mode. As explained in the specification at page 19, line 27 through page 24, line 2, the means in the embodiment of Figures 3-4 includes a clutch 20. The clutch 20 includes a clutch shaft 21 is interconnected relative to the input member 5. To this end, a peripheral surface 35 of an end of the input member 5 is provided with rows 22 of serially arranged projections 23, associated with which are corresponding rows 31 of projections 30 on a peripheral surface 24 of a longitudinal bore 25 in the clutch shaft 21. In the normal operation when the actuation component 5 is uncoupled from the clutch shaft 21, there is a distance 'a' between the end of the actuation component 5 and an associated abutment surface on the clutch shaft 21. When the fallback mode is adjusted in the brake system, the clutch shaft 21 is turned in relation to the input member 5 by an appropriate amount, whereby the clutch shaft 21 is coupled to the actuation component 5. This avoids a lost travel in the magnitude of the distance 'a'.

As explained in the specification at page 24, line 24 through page 25, line 12, the means in the embodiments of Figures 6-7 include a clutch 48. "According to Figure 6, the clutch 48 is disposed between the two actuation components 37, 47 and includes a block-shaped member 40 that can be moved in a form-fit manner into the distance 'a' in such a way that the lost travel 'a' is bridged in a form-fit manner. The arrangement is comparable with a door latch, and member 40 is shifted automatically between the two actuation components 37, 47 in the fallback mode due to lacking energization of a retaining device for the purpose of reducing the lost travel. An elastically preloaded spring 41 is provided as a drive in this connection, urging the member 40 into the clearance."

As set forth in independent **claim 45**, the presently claimed invention relates to a brake system of a motor vehicle comprising a brake booster 6 of Figures 1, 2, 6 and 8, a master brake cylinder 11 of Figures 1, 2 and 5-8 fluidly connected to the brake booster 6 and a brake-by-wire actuator. With reference to Figures 1-3 and 5-8, the specification explains in the paragraph beginning on page 17, line 8 that the

brake-by-wire actuator comprises a simulator 2 which can be acted upon by a brake pedal 1. An output signal of an actuation sensor 3 is sent to an electronic control unit 4 which controls a pressure source 6 in response to the signal of the actuation sensor 3. As set forth in the paragraph beginning at page 17, line 26, an output of the pressure source 6 is connected to the master brake cylinder 11 for controlling the brake force and actuating individual wheel brakes 16 of the vehicle.

The brake-by-wire actuator also comprises means for enabling actuation of the brakes by muscular power within a fallback mode. In the embodiments illustrated in Figures 1, 2 and 8 and described in the specification at page 17, line 8 to page 19, line 2, the means for enabling actuation in a fallback mode includes a first actuation component 47 defined by the brake pedal 1 and a second actuation component 37 defined by the input member 5 which is connected downstream in the flux of force. The first and second actuation components 47, 37 are configured relative to one another such that the first actuation component 47 remains mechanically uncoupled in a non-force-transmitting manner from the second actuation component 37 during the by-wire mode.

In the embodiment illustrated in Figures 3-4 and described in the specification at page 19, line 27 to page 24, line 2, the means for enabling actuation in a fallback mode includes a first actuation component 47 defined by a component 21 articulated at the brake pedal 1 and a second actuation component 37 defined by the input member 5 which is connected downstream in the flux of force. The first and second actuation components 47, 37 are configured relative to one another such that the first actuation component 47 remains mechanically uncoupled in a non-force-transmitting manner from the second actuation component 37 during the by-wire mode.

In the embodiment illustrated in Figure 5 and described in the specification at page 24, lines 3-23, the means for enabling actuation in a fallback mode includes a first actuation component 47 defined by a component 36 articulated at the brake pedal 1 and a second actuation component 37 defined by a hydraulic piston 46 which is connected downstream in the flux of force. The first and second actuation components 47, 37 are configured relative to one another such that the first actuation component 47 remains mechanically uncoupled in a non-force-

transmitting manner from the second actuation component 37 during the by-wire mode.

In the embodiment illustrated in Figures 6-7 and described in the specification at page 24, line 24 to page 25, line 26, the means for enabling actuation in a fallback mode includes a first actuation component 47 defined by a component 36 articulated at the brake pedal 1 and a second actuation component 37 which is connected downstream in the flux of force. The first and second actuation components 47, 37 are configured relative to one another such that the first actuation component 47 remains mechanically uncoupled in a non-force-transmitting manner from the second actuation component 37 during the by-wire mode.

In each of the embodiments, a lost travel 'a' (see Figures 2, 3, 5, 6 and 7) remains between the first actuation component 47 and the second actuation component 37 during the by-wire mode. See, e.g., the specification at page 18, line 29 to page 19, line 9; page 21, lines 11-14; page 24, lines 14-20; page 24, lines 21-23. As explained in the specification at page 3, lines 15-24, the "lost travel a is provided between an actuation component such as a brake pedal or a component articulated at a brake pedal and a second actuation component that is connected downstream in the flux of force, in order to uncouple the brake pedal mechanically from the reactions of force of the motor vehicle brake system in the by-wire mode. Consequently, the actuation component has a divided design, and the two parts are spaced a distance 'a' from one another so that the flux of force is interrupted." (emphasis added). With this assembly, disturbances at the wheel brakes are not transmitted back through the actuation components to the brake pedal, thereby minimizing unwanted feedback to the driver.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

(a) Whether claims 22-25, 36-38, 42 and 44-47 are anticipated under 35 U.S.C. 102(b) by Heibel (U.S. Patent No. 6,233,932).

(b) Whether claims 30, 33 and 35 are unpatentable under 35 U.S.C. 103(a) over Heibel (U.S. Patent No. 6,233,932).

(c) Whether claims 48 and 49 are drawn to a non-elected embodiment.

VII. ARGUMENT**(a) Rejection of claims 22-25, 36-38, 42 and 44-47 under 35 U.S.C. 102(b) as anticipated by Heibel (US No. 6,233,932).**

Claims 22-25, 36-38, 42 and 44-47 stand rejected under 35 U.S.C. 102(b) as anticipated by Heibel (US No. 6,233,932).

Independent claims 22 and 45 recite similar features which are neither disclosed nor suggested by Heibel. More particularly, independent claim 22 recites a "[b]rake-by-wire actuator for actuating the brake system of a motor vehicle, comprising a simulator which can be acted upon by a brake pedal, with an output signal of an actuation sensor being sent to an electronic control unit which controls a pressure source in response to the signal of the actuation sensor, and with an output of the pressure source that is connected to a distributor device for the brake force and actuates individual wheel brakes of the vehicle, also comprising means for enabling actuation of the brakes by muscular power within a fallback mode, wherein a first actuation component, defined by the brake pedal or a component articulated at the brake pedal, and a second actuation component that is connected downstream in the flux of force are configured relative to one another such that the first actuation component remains mechanically uncoupled in a non-force-transmitting manner from the second actuation component during a by-wire mode with a lost travel remaining between the first and second actuation components during the by-wire mode."

Independent claim 45 recites "[a] brake system of a motor vehicle comprising a brake booster; a master brake cylinder fluidly connected to the brake booster; and a brake-by-wire actuator comprising a simulator which can be acted upon by a brake pedal, with an output signal of an actuation sensor being sent to an electronic control unit which controls the brake booster in response to the signal of the actuation sensor, and with an output of the brake booster that is connected to the master brake cylinder for controlling the brake force and actuating individual wheel brakes of the vehicle based upon the output signal of the actuation sensor, also comprising means for enabling actuation of the brakes by muscular power within a fallback mode, wherein a first actuation component, defined by the brake pedal or a component articulated at the brake pedal, and a second actuation component that

is connected downstream in the flux of force are configured relative to one another such that the first actuation component remains mechanically uncoupled in a non-force-transmitting manner from the second actuation component during a by-wire mode with a lost travel remaining between the first and second actuation components during the by-wire mode."

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." M.P.E.P. §2131 *citing Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Independent claims 22 and 45 recite similar elements which are neither disclosed nor suggested by Heibel.

The Office Action cites to Heibel's input member 60 as equivalent to Appellants' first actuation component and Heibel's pin shaped-projection 66 of the primary piston 16 as equivalent to Appellants' second actuation component. Contrary to the language of claims 22 and 45, Heibel's input member 60 and primary piston 16 (including its pin shaped-projection 66) remain mechanically coupled in a force-transmitting manner during a by-wire mode. As best shown in Figure 1 of Heibel, the brake pedal 58 bears on a plate 86; the plate 86 bears on one end of a spring 74; the opposing end of the spring 74 bears on another plate 78; the plate 78 bears on one end of a hollow piston 40; and the opposing end of the hollow piston 40 bears on the primary piston 16. Because Heibel's input member 60 *always* bears on the primary piston 16 (by virtue of the force of spring 74 which bears on plate 78 which bears on hollow piston 40 which bears on primary piston 16), Heibel does not disclose a first actuation component that remains mechanically uncoupled *in a non-force-transmitting manner* from a second actuation component during a by-wire mode.

The final Office Action contends that Heibel's input member 60 is mechanically uncoupled in a non-force-transmitting manner from the pin shaped-projection 66 because Heibel's spring 74 does not transmit force if the booster chamber 44 is pressurized during a by-wire mode. The Appellants respectfully disagree with this contention.

First, by virtue of the arrangement of the spring 74, the projection 66 and the input member 60, the spring 74 always transmits force unto the pin shaped-projection 66, regardless of whether booster chamber 44 is pressurized. Even though the pressure of the chamber 44 may exceed the force applied by the spring 74 in a by-wire mode, the spring 74 still transmits a force onto the pin shaped-projection 66. Thus, Heibel does not disclose a first actuation component that remains mechanically uncoupled *in a non-force-transmitting manner* from a second actuation component during a by-wire mode.

Second, as Heibel explains at column 7, lines 60-67, the spring 74 provides a driver with feedback during the by-wire mode. To provide feedback to the driver, the spring 74 must mechanically couple the input member 60 with the pin shaped-projection. Based on such a mechanical coupling, vibrations or disturbances produced by the braking system will be transmitted to the driver even in the by-wire mode.

For at least the foregoing reasons, allowance of claims 22 and 45 is respectfully requested. Claims 22-25, 36-38, 42 and 44-47 each depend from independent claim 22 or independent claim 45 and should be allowable for at least the reasons set forth above. Withdrawn claims 26-29, 31, 32 and 34 depend from generic claim 22 and should be reinstated and allowed. Claims 48 and 49 depend from generic claim 45 and should be reinstated and allowed.

(b) Rejection of claims 30, 33 and 35 as unpatentable under 35 U.S.C. 103(a) over Heibel (U.S. Patent No. 6,233,932).

Claims 30, 33 and 35 stand rejected under 35 U.S.C. 103(a) as unpatentable over Heibel. Claims 30, 33 and 35 each depend from independent claim 22. As explained above, Heibel does not disclose or suggest every element of independent claim 22. "To establish a prima facie case of obviousness, ... the prior art reference (or references when combined) must teach or suggest all the claim limitations." M.P.E.P. §2143. Because claims 30, 33 and 35 each depend from independent claim 22, and Heibel does not disclose or suggest every element of independent claim 22, it follows that claims 30, 33 and 35 should be allowable based

upon their dependency from claim 22. For at least the foregoing reasons, allowance of claims 30, 33 and 35 is respectfully requested.

(c) Withdrawal of claims 48 and 49 as being drawn to a non-elected embodiment

Claims 48 and 49 were withdrawn in the final Office Action because those claims were deemed to be directed to the non-elected embodiments shown in Figures 5-8. The Appellants respectfully disagree and submit that claims 48 and 49 are supported by the elected embodiment shown in Figures 3 and 4 for the reasons set forth hereinafter.

Claim 48 recites "wherein, in the fallback mode, said one of the actuation components bears on the other actuation component, and in the by-wire mode said other actuation component does not bear on the other actuation component." Claim 49 recites "wherein, in the by-wire mode, the first actuation component is unconstrained with respect to the second actuation component." Claims 48 and 49 both depend from claim 47, which recites "wherein one of the actuation components includes a recess in which the other actuation component is positioned in both the by-wire mode and the fallback mode."

The features recited in claims 47-49 read on the embodiments of Figures 3 and 4, which were elected for prosecution by the Appellants. With regard to claim 47, Figures 3 and 4 illustrate that one of the actuation components (see clutch shaft 21) includes a recess (see bore 25) in which the other actuation component (see actuation component 5) is positioned in both the by-wire mode and the fallback mode.

With regard to claim 48, Figures 3 and 4 illustrate that in the fallback mode, said one of the actuation components (see clutch shaft 21) bears on the other actuation component (i.e., the projections 30 of the clutch shaft 21 bear on the projections 23 of the actuation component 5 by virtue of the rotational position of the actuation component 5), and, in the by-wire mode, said other actuation component does not bear on the other actuation component (i.e., the projections 30 of the clutch

shaft 21 do not bear on the projections 23 of the actuation component 5 by virtue of the rotational position of the actuation component 5).

With regard to claim 49, Figures 3 and 4 illustrate that in the by-wire mode, the first actuation component is unconstrained with respect to the second actuation component (i.e., the projections 30 of the clutch shaft 21 do not bear on the projections 23 of the actuation component 5 by virtue of the rotational positional position of the actuation component 5).

As described in the specification at page 20, lines 14-16, the clutch shown in FIGS. 3 and 4 "renders it optionally possible to mechanically couple the brake pedal 1 to the actuation component 5 or to remove this coupling." More particularly, in one rotational position of the actuation component 5 of FIG. 3, the projections 23 of the actuation component 5 bear on the projections 30 of the clutch shaft 21 such that movement of the clutch shaft 21 moves the actuation component 5.

In another rotational position of the actuation component 5, the projections 23 of the actuation component 5 do not bear on the projections 30 of the clutch shaft 21 such that movement of the clutch shaft 21 does not induce movement of the actuation component 5. In other words, in the aforementioned another rotational position of the actuation component 5, the actuation component 5 is unconstrained with respect to the clutch shaft 21.

The Advisory Action dated December 3, 2010 states that "one element is slidably guided in the other element and therefore bears against or is constrained by the other element." Appellants respectfully disagree with this conclusion and submit that when one element floats within a bore of another element, those elements do not necessarily bear against each other and those elements are not necessarily constrained by each other.

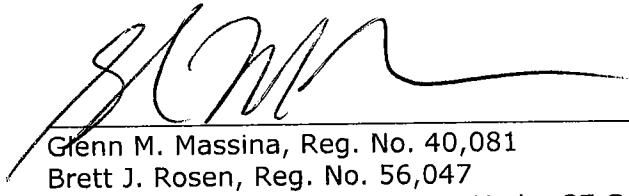
For at least the foregoing reasons, Appellants respectfully submit that claims 48 and 49 read on the elected embodiment that is depicted in Figures 3 and 4.

VIII. CONCLUSION

In view of the arguments set forth above, the Appellants respectfully submit that all pending claims are patentable over the cited references. The rejection of the final Office Action should therefore be reversed with instructions to issue a Notice of Allowability. Such actions are respectfully requested.

Respectfully Submitted,

RatnerPrestia



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GMM/BJR/mc

Enclosures: Claims Appendix
 Evidence Appendix
 Related Proceedings Appendix

Dated: February 11, 2011

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The Director is hereby authorized to charge or credit Deposit Account No. 18-0350 for any additional fees, or any underpayment or credit for overpayment in connection herewith.

CLAIMS APPENDIX

22. Brake-by-wire actuator for actuating the brake system of a motor vehicle, comprising a simulator which can be acted upon by a brake pedal, with an output signal of an actuation sensor being sent to an electronic control unit which controls a pressure source in response to the signal of the actuation sensor, and with an output of the pressure source that is connected to a distributor device for the brake force and actuates individual wheel brakes of the vehicle, also comprising means for enabling actuation of the brakes by muscular power within a fallback mode,

wherein a first actuation component, defined by the brake pedal or a component articulated at the brake pedal, and a second actuation component that is connected downstream in the flux of force are configured relative to one another such that the first actuation component remains mechanically uncoupled in a non-force-transmitting manner from the second actuation component during a by-wire mode with a lost travel remaining between the first and second actuation components during the by-wire mode.

23. Brake-by-wire actuator as claimed in claim 22,

wherein a means is provided in order to automatically reduce the lost travel after a by-wire mode at the commencement of a brake actuation executed by muscular power.

24. Brake-by-wire actuator as claimed in claim 23,

wherein said means may be actuated by means of an electric, electromagnetic, hydraulic, or pneumatic actuator, which will automatically adopt a closing position for reducing the lost travel in the fallback mode.

25. Brake-by-wire actuator as claimed in claim 24,

wherein the means is provided as a clutch between the two actuation components.

26. Brake-by-wire actuator as claimed in claim 25,

wherein the means comprises a block-shaped body which bridges the lost travel between the actuation components in a form-fit manner.

27. Brake-by-wire actuator as claimed in claim 25,
wherein the actuator includes a spring for the elastic preload of the block-shaped body and a solenoid for returning or keeping back the block-shaped body in the opening position.
28. Brake-by-wire actuator as claimed in claim 22,
wherein the pressure source comprises a hydraulic booster with at least one hydraulic pump which is actuatable by electric signals in the by-wire mode, and wherein the actuation in the fallback mode is carried out hydraulically by way of a master brake cylinder.
29. Brake-by-wire actuator as claimed in claim 28,
wherein the pump feeds a high-pressure accumulator.
30. Brake-by-wire actuator as claimed in claim 22,
wherein the pressure source comprises a pneumatic booster which is actuatable by electric signals in the by-wire mode and mechanically by way of the actuation components in the fallback mode.
31. Brake-by-wire actuator as claimed in claim 30,
wherein the pressure source includes a pneumatic booster and additionally a hydraulic pump being actuated in the event of a defect of the pneumatic booster or when boosting is not sufficient.
32. Brake-by-wire actuator as claimed in claim 30,
wherein the pressure source includes an electromotively driven master brake cylinder.
33. Brake-by-wire actuator as claimed in claim 22,
wherein there is provision of at least one member of the group consisting a travel sensor in a pneumatic booster, a pneumatic pressure sensor in the pneumatic booster, a differential pressure sensor in the pneumatic booster, and a hydraulic pressure sensor in a brake circuit detecting deviations from nominal values, and

wherein the electronic unit on account of detected sufficient deviations detects a malfunction in the brake system and initiates safety processes.

34. Brake-by-wire actuator as claimed in claim 33,
wherein the travel sensor and the pressure sensor or the differential pressure sensor detects a point of maximum boosting of the booster, and
wherein the hydraulic pump is started by way of the electronic unit.
35. Brake-by-wire actuator as claimed in claim 33,
wherein the travel sensor or the pressure sensor or the differential pressure sensor detects a point of maximum boosting of the booster, and
wherein the hydraulic pump is started by way of the electronic unit.
36. Brake-by-wire actuator as claimed in claim 22,
wherein the simulator includes a motor or a spring used to generate reaction forces.
37. Brake-by-wire actuator as claimed in claim 25,
wherein the position of the point of application of the brake pedal in relation to the subsequent actuation component is adjustable.
38. Brake-by-wire actuator as claimed in claim 37,
wherein the brake pedal is coupled to a clutch shaft pivotally mounted in a longitudinal direction of the clutch shaft, the clutch shaft being longitudinally displaceable relative to the input member in dependence on a rotary position of the clutch shaft relative to the input member or is in engagement with the input member in an axial direction.
42. Brake-by-wire actuator as claimed in claim 38,
wherein the clutch includes a spring whose first end is supported on a housing of the clutch and whose second end is supported on a transmission member, with said transmission member being connectable to the clutch shaft pivotally mounted in the longitudinal direction of the clutch shaft, with said clutch shaft being longitudinally displaceable in relation to the transmission member in dependence on

a rotary position of the clutch shaft with respect to the transmission member or being in engagement with the transmission member in an axial direction by way of projections.

44. Brake-by-wire actuator as claimed in claim 22,
wherein the simulator which can be acted upon by a brake pedal is arranged at the brake pedal.
45. A brake system of a motor vehicle comprising:
a brake booster;
a master brake cylinder fluidly connected to the brake booster; and
a brake-by-wire actuator comprising a simulator which can be acted upon by a brake pedal, with an output signal of an actuation sensor being sent to an electronic control unit which controls the brake booster in response to the signal of the actuation sensor, and with an output of the brake booster that is connected to the master brake cylinder for controlling the brake force and actuating individual wheel brakes of the vehicle based upon the output signal of the actuation sensor, also comprising means for enabling actuation of the brakes by muscular power within a fallback mode, wherein a first actuation component, defined by the brake pedal or a component articulated at the brake pedal, and a second actuation component that is connected downstream in the flux of force are configured relative to one another such that the first actuation component remains mechanically uncoupled in a non-force-transmitting manner from the second actuation component during a by-wire mode with a lost travel remaining between the first and second actuation components during the by-wire mode.
46. Brake-by-wire actuator as claimed in claim 22, wherein, in the by-wire mode, the first actuation component and the second actuation component are disconnected.
47. Brake-by-wire actuator as claimed in claim 22, wherein one of the actuation components includes a recess in which the other actuation component is positioned in both the by-wire mode and the fallback mode.

48. Brake-by-wire actuator as claimed in claim 47, wherein, in the fallback mode, said one of the actuation components bears on the other actuation component, and in the by-wire mode said other actuation component does not bear on the other actuation component.

49. Brake-by-wire actuator as claimed in claim 22, wherein, in the by-wire mode, the first actuation component is unconstrained with respect to the second actuation component.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None